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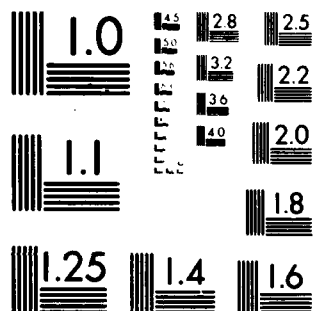
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(14) PI-TR-454-VOL-1

(9) Final
Technical Report, No. 454

(6) VOLUNTEER ROADMAPS UPDATE.
VOLUME I. FINDINGS.

by
(10) R. A. Holmes G. E. Cook

(11) 10 Apr 1980

(12) 78

Prepared for
Defense Manpower Data Center
Under

Contract MDA 903-79-e-0200
(15)

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report No. 454	2. GOVT ACCESSION NO. AD-A083 989	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Volunteer Roadmaps Update Volume, I: Findings		5. TYPE OF REPORT & PERIOD COVERED Final
7. AUTHOR(s) R. A. Holmes and G. E. Cook		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Presearch Incorporated / 2361 S. Jefferson Davis Highway Arlington, Virginia 22202		8. CONTRACT OR GRANT NUMBER(s) MDA 903-79-C-0200 /
11. CONTROLLING OFFICE NAME AND ADDRESS Defense Manpower Data Center Alexandria, VA		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE 10 April 1980
		13. NUMBER OF PAGES 75
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Recruiting, Population Distribution, NPS Accessions, Geographical Distribution, Education Level, Mental Groups.		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This study was conducted for the Defense Manpower Data Center under Contract MDA 903-79-C-0200. Recent trends in the geographical distribution of Non-Prior Service accession results are displayed and evaluated in this report. Trends are addressed for a number of subsets of total DoD NPS accessions: Male versus Female; Black versus all races, High School Graduates versus total accessions; Mental Group I and II, III, and IV versus total accessions and service versus service. Population trends are compared with accession trends and trends in monthly level loading are also discussed in the report. The study concludes that a number of these trends may indicate the existence of current or future problems in recruiting.		

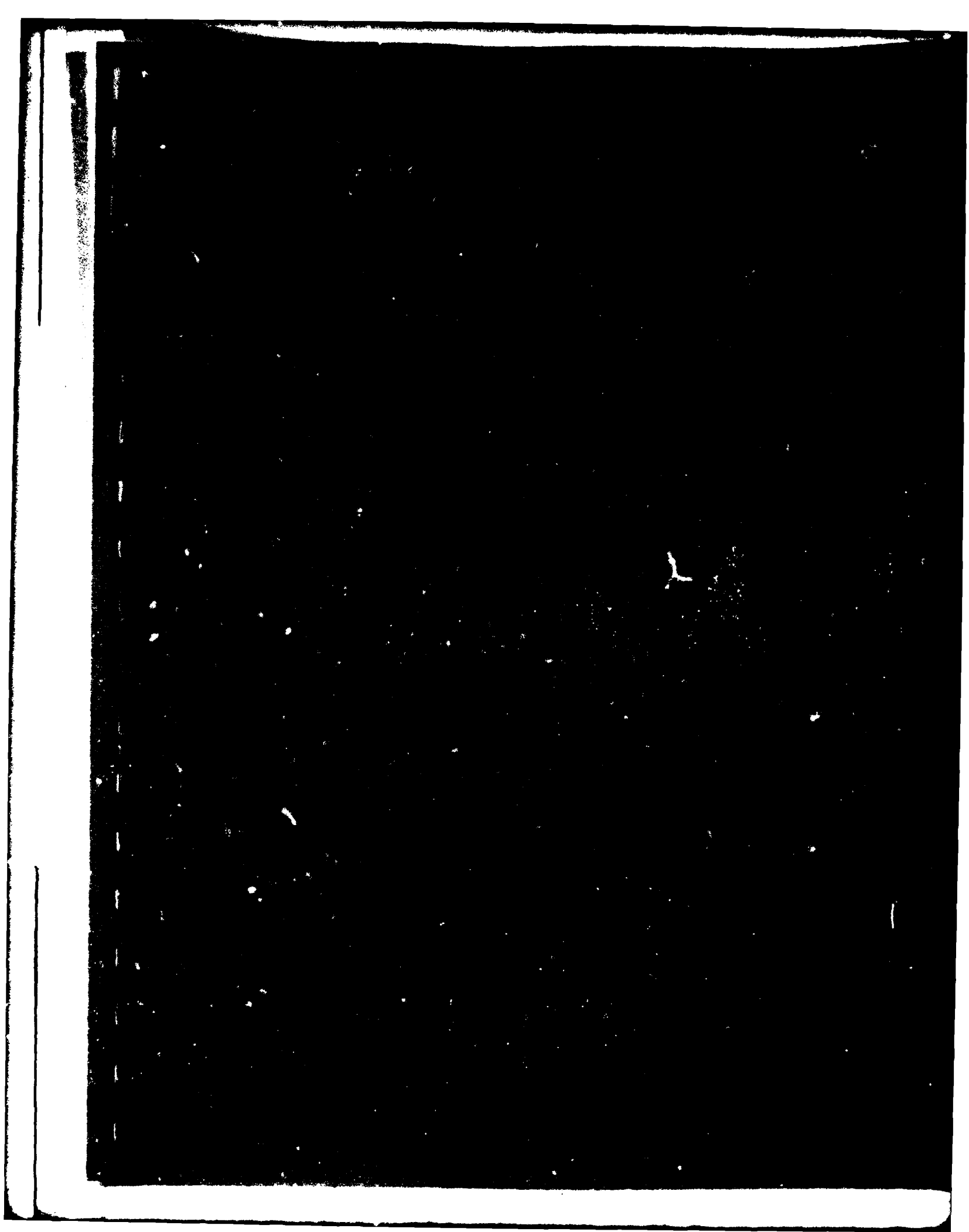
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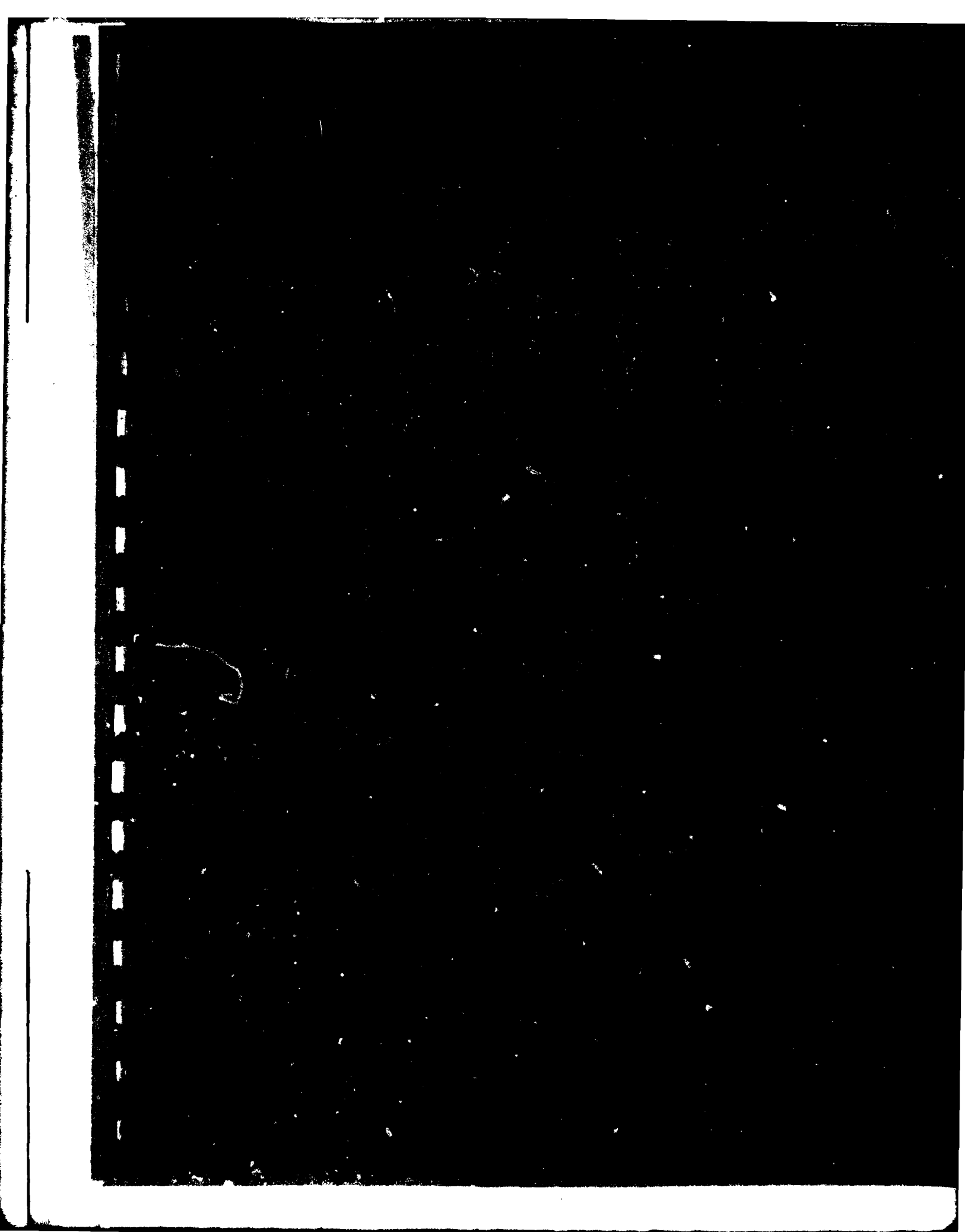
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I. INTRODUCTION

1.1 This report presents the results of Presearch Incorporated's work in updating the 1974 Air Force Volunteer Roadmaps Study. The work was performed for the Defense Manpower Data Center (DMDC) under Contract No. MDA 903-79-C-0200.

1.2 The report is presented in two volumes. The narrative presentation and discussion of the study findings are contained in this volume, Volume I. To facilitate reading the report, most of the numerous maps, charts, and tables referenced in the findings are bound in a separate volume, Volume II.

BACKGROUND

1.3 In 1974 the United States Air Force conducted the Volunteer Roadmaps Study. ^{1/} The objectives of the study were to track key accession characteristics, provide an understanding of the recruiting market, and examine relationships between accessions and the market. Most of the data used in the study were for FY74, although FY73 and FY72 data were also used, when appropriate, for comparisons to the FY74 information.

1.4 The major display vehicles for the study were maps of the United States. On the maps, states were color-coded, generally

^{1/} United States Air Force, Some Preliminary Findings in the Volunteer Roadmaps Study Effort. Undated briefing charts.

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by ten-state groupings, according to the relative values of various accession or market parameters.

Original Study Findings

1.5 The Air Force study findings focused on four basic areas:

a. Quantity of accessions, including:

- the percentage of Air Force male enlisted accessions that came from each state
- the percentage of 17- to 22-yr old male United States population residing in each of the ten most populous states versus the percentage of the total male enlisted accessions that enlisted from each state
- the percentage of DoD male enlisted accessions from each state that enlisted in each service
- the percentage of male enlisted Air Force accessions for each state that enlisted for six yr
- the percentage of male enlisted Air Force accessions for each state that were married.

b. Quality of accessions, including:

- the percentage of total MG I and II male enlisted Air Force accessions that enlisted from each state
- the percentage of male enlisted Air Force accessions from each state that were MG I or II

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- the average AFQT, AQE, Mechanical AQE, Administrative AQE, General AQE, and Electronic AQE scores for Air Force male enlisted accessions.
- c. Minority accessions, including:
- the percentage of the total female and the total black enlisted Air Force accessions that were enlisted from each state
 - a comparison of the percentage of a state's male enlisted accessions that were black and the percentage of the state's 17- to 22-yr old male population that was black.
- d. Recruiter effectiveness, including:
- the number of male enlisted accessions and average man-years of recruit obligated service per production recruiter for each state
 - a comparison, by service and state, of the number of MG I and II accessions per recruiter.
- 1.6 The major findings of the study were:
- a. During the period FY72 through FY74, the most populated states provided the most recruits and the most MG I and II recruits
 - b. Compared to other regions, the mid-west provided a relatively high proportion of MG I and II's and (for the Air Force) recruits with high AQE scores

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- c. The south-central states provided black recruits in proportions higher than was explainable solely in terms of the states' populations of black 17- to 22-yr old males.

Original Study Characteristics

1.7 The 1974 Air Force Roadmaps study was one of the first studies to address geographic distribution of accessions and the recruiting market in an all volunteer force environment. As such, the major characteristics of the study included:

- a. An orientation toward Air Force accession results, although all services were addressed in the study
- b. A focus on static/single-yr information with only very limited discussion of trends
- c. The use of data that, in many instances, was collected specifically for the study
- d. Attention to accession results perceived as "key" results based on then-current knowledge of the science of recruiting.

PURPOSE AND SCOPE

1.8 The primary purpose of this study is to identify geographical trends in the quantity and quality of all volunteer force accessions. In the sense that the focus is on geographical accession results and the major display vehicles are U. S. maps, this study is an update of the 1974 Air Force Roadmaps study.

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1.9 In the sense, however, that this study addresses trends in accession results, rather than single point in time results, the study represents an expansion of the 1974 study approach and methods. This study also differs from the 1974 study in that no particular emphasis is placed on any specific service. Except for cases where, because of their relatively high numbers compared to the other services, Army accession results drive the patterns observed for total DoD accessions, each service is treated identically.

Scope

1.10 Ultimately, decisions will be made that will correct "problems" in enlisted recruiting (e.g., that stop undesirable trends, accelerate beneficial trends, increase production from portions of the target market that are not being adequately tapped, etc.). These decisions will involve:

- Changing or reallocating resources (dollars, manpower, or material)
- Changing priorities (with or without reallocating resources)
- Changing recruiting policies, procedures, or programs, including administrative, and legislative initiatives.

1.11 Such decisions will arise as part of a three-step process:

- a. Identification of a problem (i.e., knowledge of what is happening)

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- b. Analysis of the problem (i.e., knowledge of why things are happening and development of alternatives to correct the problem)
- c. Decision (i.e., selection and implementation of one or more of the alternatives to correct the problem).

1.12 The scope of this study is limited, for the most part, to what changes have occurred over the past several years in the geographical distribution of non-prior service (NPS) accessions. While the study includes some analysis of population trends, a full statement of why the observed trends have occurred has not been developed as part of this effort.

1.13 Constraints imposed by the data limitations implicit to the study charter (as described in more detail below) contributed to establishing the study scope. Determining the specific reasons why various trends have occurred will, in many cases, require an analysis of detailed population, economic, recruiting objective/goal and recruiting resource (personnel and dollar) distributions. Much of this data is not readily available in a format accommodating analyses of the types required. Accordingly, expanding the scope to include a detailed investigation into why specific trends have occurred could not be justified until such time as DoD and recruiting service managers have had the opportunity to review the basic trends. Such a review will result in the identification of which trends are considered "significant" in that the trends indicate that some reallocation of resources, change in priorities and/or change in policies or procedures may be warranted. Only subsequent to such a review can the data collection and analysis effort to pinpoint the reasons for the "significant" trends be justified.

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DATA

1.14 The study charter called for the use of existing data available through either the Defense Manpower Data Center or other sources such as Census Bureau reports. Specifically, the individual services were not to be contacted for data which they alone may have held. This limitation had little effect on the ability to identify what trends existed, but obviously eliminated the possibility of analyzing accession results in light of factors such as recruiting objectives or goals or distribution of recruiters and recruiting resources.

Accession Data

1.15 During the first week of September, 1979, Presearch visited the Defense Manpower Data Center (DMDC), Monterey, California. DMDC data base layouts and recurring reports were reviewed, as were DMDC capabilities to respond to one-time requests. The focus of the review was on DMDC's Edited AFEES data file and the routine and special reports available based on that file. The files currently contain over 45 coded data elements for each recruit. Historical files of the same or similar data are reasonably complete back to October, 1975, and, with some data missing, go back as far as July, 1970. ^{2/}

1.16 Based on the review, six recurring reports were identified as basic data sources for this study. The reports used and the fiscal years covered by each report are:

^{2/} A more complete description of DMDC files is contained in: Defense Manpower Data Center, The Recruit Market Network Users Guide, Appendix B, 1 February 1978.

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<u>DMDC Report Number</u>	<u>Title</u>	<u>Fiscal Years Covered</u>
555	NPS Enlistees by Service by State/ Region by Race by Education/Mental Group	75-79
584	NPS Accessions: - Year of Birth by Service by Sex - Age by Service by Sex - Education by Service by Sex - Service by Mental Group by Sex and Race	71-79
748	Same as Report No. 555 except by SMSA instead of by state	73-76
816	NPS Accession Characteristics by Service by Race by State	76-79
836	Same as Report No. 816 except by SMSA instead of by state	76-79
3144	NPS Accessions by Month, Education Level, Mental Category, Race and Service	73-79

Accession Data Limitations

1.17 Use of these data expedited the effort to identify trends.
Two drawbacks, however, arise from using these data:

- a. The individual reports covered different ranges of fiscal years. Some trends can be observed over five or six fiscal years, while others are limited to as few as three fiscal years.
- b. Use of the reports for data in the form of accessions per state or regional population (e.g., total DoD NPS male accessions from each state as a percentage of

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state 17 to 21 yr old male population) was not practical. Where such data appears in the reports it is based on a single table of population (i.e., population is assumed to be constant for all fiscal years covered by the report) and the table of population used is suspect due to its age. Accordingly, these data were not used.

Population Data

1.18 The availability of useable population and economic data of the type required to conduct studies such as this one was addressed in detail in a recent Presearch Technical Report. ^{3/} While a number of data sources exist, using them presents problems in that:

- a. Neither DMDC nor any other DoD agency routinely collects and stores the data for use in recruiting analyses
- b. The data are somewhat piecemeal in that, depending on the originating source, they often cover only subsets of the population (e.g., a given age group or geographical grouping). No single source covers, for example, what has traditionally been defined as the recruiting "target market"--17 to 21 yr old qualified males

^{3/} Presearch Incorporated, Sources of Civilian Manpower Data Files, Technical Report No. 440, 28 September 1979.

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- c. The various statistical sampling/projection methods used to develop most of the data adversely impact on the credibility of using the data for purposes other than those for which the data were collected.

1.19 Population data used in this report were extracted from census data, specifically: U. S. Department of Commerce, Bureau of the Census Statistical Abstract of the United States for years 1971 (92nd Edition) through 1978 (99th Edition), U. S. Government Printing Office, Washington, D. C.

1.20 The Statistical Abstract of the United States contains estimates (based on population surveys) of populations for various age groupings for each state and census region for each year through calendar year 1978. Unfortunately, the age breakouts used in the abstracts are 14 to 17 yr, 18 to 20 yr, and 21 to 44 yr. For the purposes of showing relevant historical population trends, we used the 18 to 20 yr state population figures since, from among the available choices, this group should most closely parallel actual target market population figures (note that the average age at enlistment for NPS males has historically been between 19 and 20 yr).

METHODS

1.21 The primary display vehicles used in the study are maps shaded so that trends can readily be observed. The general methods used are described below using a simple example.

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Example

1.22 In looking at trends in the relative proportion of accessions that are enlisted from each state, data for two states for four fiscal years might be:

State	% of Total Accessions That are Enlisted From Each State			
	FY1	FY2	FY3	FY4
A	4.0	3.8	3.5	3.1
B	3.1	2.8	3.3	3.6

1.23 From this table, or simple bar or line graphs plotted using the data, much information can be identified (e.g., over the period observed, the proportion of the total accessions coming from State A has steadily declined, while, with the exception of FY2, the proportion of accessions enlisting from State B has increased). If the table or graph was expanded to all 50 states, however, communication of the desired information would suffer dramatically, as the ability of the viewer to mentally interpolate and determine where significant trends do and do not exist would quickly be saturated. To avoid this problem, two methods are used:

- a. The data is reduced to a single variable for each state, e.g., the difference between FY1 and FY4

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- b. The variable is normalized and displayed on a map using just five shadings to represent five different ranges of the variable.

1.24 Data Reduction. In the example, the data would be reduced to:

State	Change (FY1 to FY4) in % of Total Accessions That are Enlisted From Each State
A	- 0.9
B	+ 0.5

1.25 Some information is lost through the data reduction, e.g., the 0.9 percent decrement exhibited by State A has occurred at a relatively uniform rate throughout the four fiscal yeqrs, while the 0.5 percent increase exhibited by State B has taken place in a non-uniform manner. Where the use of the single variable would provide an incomplete picture, the narrative accompanying the relevant figure or table includes an explanation as to the peculiarity of the specific case.

1.26 Map Coding. The map coding scheme used is the same as that used in the original Roadmaps study. Each state is shaded in such a way as to show whether its value is about average, "somewhat" above or below average, or "considerably" above or below average. For each state, its deviation from the national average is divided by the standard deviation of all state values about the national average. This quotient, say d, is a normalized deviation that is

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then used to characterize the state with respect to the average. If the state values were normally distributed, then about a fifth of them would have values of d greater than .84 (and an equal number below -.84), about a fifth would have d between .25 and .84 (and an equal number between -.84 and -.25), and a fifth would have d values between -.25 and +.25. Therefore, a standard system of map shading, which also indicates at a glance the normality or non-normality of the distribution of state values, is given by the following scheme:

<u>Characterization</u>	<u>d - Interval</u>
Considerably Above National Average	$d > .84$
Somewhat Above National Average	$.25 < d \leq .84$
National Average	$-.25 \leq d \leq .84$
Somewhat Below National Average	$-.84 \leq d < -.25$
Considerably Below National Average	$d < -.84$

1.27 On the maps, the actual range of values corresponding to each of the five d -Intervals are shown, rather than the d -Intervals themselves. Note also that, particularly when the variable being addressed is a difference (e.g., change across several fiscal years), our preliminary findings show that the state values are generally not normally distributed. The five groups might typically contain 6, 8, 20, 9, and 7 states vice the 10, 10, 10, 10 breakout expected if a normal distribution existed.

CONTENTS

1.28 An overview of the general trends in geographical accession results is presented in Section II. Section III contains the detailed findings for various subsets of accessions (e.g., all NPS accessions, sex and race breakouts, high school graduate

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breakouts, etc.) for total DoD and each service. Conclusions and recommendations are presented in Section IV.

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II. OVERVIEW

2.1 An overview of recent trends in the geographic distribution of NPS accessions is presented in this section. These trends are presented in three major subsections:

- Basic trends, including those for NPS male, NPS black male, NPS female, and NPS black female accessions and a comparison of the NPS male and NPS female trends with population trends
- Trends, by race and sex, in high school graduate accessions
- Trends in accessions for NPS male Mental Groups I + II, III, and IV.

2.2 Since this is an overview, the discussions in the subsections of the section generally focus on total DoD accessions. Trends for individual services are discussed only when they differ substantially from overall DoD trends. Additionally, the bulk of the material in this section (with the exception of the comparisons with population trends) addresses trends at the census region level. Full details on trends in the individual services down to the state level as well as trends in service shares and level loading are contained in Section III of this report.

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BASIC TRENDS

NPS Male Accessions

2.3 During the period FY75 to FY79, total DoD NPS male accessions varied from a high of over 370,000 to a low of about 268,000 (Figure 2.1). With no other information given, it might be reasonable to assume that, notwithstanding the variations in total NPS male accessions, the percentage of the accessions that were enlisted from various geographic areas might remain constant with time. Such is not the case.

2.4 Between FY75 and FY79, major shifts have occurred in the geographic distribution of NPS male accessions. As shown in Figure 2.2:

- The percentage of total DoD NPS male accessions coming from the South Atlantic Census Region ^{1/} has increased dramatically
- The percentages of total DoD NPS male accessions coming from the Pacific and East North Central Census Regions have fallen significantly.

2.5 These specific changes are particularly pronounced for the Army (Figure 2.3). For the other services (Figures 2.4 through 2.6), variations exist in the percentages of accessions coming from each census region, however, the fact remains that for all of the services the percentages show significant changes between

^{1/} See Table 2.1 for a list of the states included in each census region.

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FY75 and FY79 and much of the change is concentrated in the South Atlantic, Pacific, and East North Central Census Regions.

2.6 State-by-state trends for total DoD NPS male accessions can be seen in Figure 2.7. On this figure, the six states and the U. S. Territories that are white are the states from which the percentage of total DoD NPS male accessions coming from each state increased considerably between FY75 and FY79. The seven states shaded black are the states with considerable decreases. The magnitude of these changes for the major states involved can be seen in Table 2.2.

NPS Black Male Accessions

2.7 While the number of total NPS male accessions has generally declined since FY75, the number of NPS black male accessions has remained somewhat stable. The result is that, as a percentage of total NPS male accessions, NPS black male accessions have increased substantially (Figure 2.8).

2.8 This fact could account for the majority of the changes that have occurred in the distribution of NPS male (all races) accessions (i.e., the NPS male (all races) accession changes could simply reflect the fact that more black accessions have occurred and these accessions naturally come from regions with higher black populations.) In fact, however, this theory would only partially explain the situation. For example, as shown in Figure 2.9, not only does the South Atlantic Census Region (a region with a sizeable black population) provide a large percentage of the total DoD NPS black male accessions, but this percentage has also increased significantly since FY75. While the Army, with the lion's share of NPS black male accessions, drives the magnitude of the total DoD percentages shown in Figure 2.9,

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the trends are typical of those found for each of the services. This may be seen by looking at the Navy (Figure 2.10), a service with a relatively (compared to the Army) low percentage of total NPS male accessions that are black.

2.9 State-by-state changes in the percentage of total DoD NPS black male accessions enlisting from each state are shown in Figure 2.11. Note that:

- a. The bulk of the changes involve ten states-- five with considerable increases and five with considerable decreases
- b. The ranges of changes for NPS black males are 1.5 to 2.5 times as large as the analogous changes for NPS males (all races).

2.10 The magnitude of the actual percentages of NPS black male accessions coming from each of the ten states with considerable increases/decreases can be seen in Table 2.3.

NPS Female Accessions

2.11 NPS female accessions have generally increased since FY76, both in numbers and as a percentage of total NPS accessions (Figures 2.12 and 2.13, respectively). Nevertheless, the changes in the geographic distribution of NPS female accessions have paralleled those for NPS males (Figure 2.14).

2.12 For total DoD, the percentage of NPS female accessions coming from each census region have remained relatively close to the percentage of NPS male accessions coming from the same census region. Results for FY79 are listed in Table 2.4. Note, however, that the DoD totals mask differences that exist between

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the services in the percentage of NPS female accessions coming from each census region as well as differences between NPS male and NPS female accessions from each census region for each service.

2.13 State by state, changes in the percentage of total DoD NPS female accessions that were enlisted from each state generally follow those changes seen for NPS males (Figure 2.15). Differences do exist, however, particularly in:

- a. Virginia and Alabama, where the considerable increase in percentage of NPS male accessions coming from the state did not occur for NPS females
- b. Oklahoma and Texas, where the considerable decrease in the percentage of NPS male accessions coming from the state was accompanied by little or no change to the NPS female percentage in the case of Oklahoma, and a considerable increase in the NPS female percentage in the case of Texas.

NPS Black Female Accessions

2.14 Since FY77, the number of NPS black female accessions has increased substantially resulting in large changes in both the percentage of total NPS female accessions that are black (Figure 2.16) and the percentage of total NPS black accessions that are female (Figure 2.17). Once again, however, the trends in NPS black female accessions coming from each census region follows those seen for NPS males and NPS females (all races) (Figure 2.18).

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2.15 In this case, however, some major differences remained in FY79 between the percentage of NPS black females coming from a census region and the percentage of NPS black males coming from the region. As shown in Table 2.5, particularly large differences exist:

- a. In the West North Central Census Region
(Marine Corps)
- b. In the South Atlantic Census Region (Navy
and Marine Corps)
- c. In the West South Central Census Region
(Navy and Air Force).

2.16 State by state (Figure 2.19), the major changes that have occurred between FY76 and FY79 in the percentages of NPS black female accessions coming from each state have taken place in the eastern portion of the country.

Basic Trends Versus Population Changes

2.17 Census Bureau estimates of the percentage of the 18- to 20-year old population residing in each census region are shown for calendar years 1970 through 1977 in Figure 2.20. Although there are small changes in these percentages, these changes are clearly not even of the same order of magnitude as the changes that have occurred for NPS accessions.

2.18 Figures 2.21 through 2.36 show estimates of the percentage of the total U. S. 18- to 2-year old population that resides in various states as well as the percentage of the total DoD NPS male and NPS female accessions that have enlisted for each state. The states selected for inclusion in this series of figures are

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those states with recent major changes in the percentage of total DoD NPS male or female accessions coming from each state. In looking at the figures, keep in mind that one-half of 1 percent of the total NPS male accessions equated to about 1900 individuals in FY76 and 1300 in FY79.

2.19 It should be clear from the figures that the changes in the percentages of total DoD NPS male and female accessions coming from the various states are not due to population changes. Furthermore, it is evident that for FY79 California, New York, Texas, Michigan, Wisconsin, and Minnesota in particular, produced accessions in proportions well below those that might have been expected based on their relative populations, while for Florida, Georgia, Alabama, and South Carolina the opposite is true.

TRENDS IN HIGH SCHOOL GRADUATE ACCESSIONS

2.20 During the past few years, variations have occurred in the percentage of total NPS male accessions that are high school graduates (HSG). Two general patterns exist--one for males (Figure 2.37) and one for females (Figure 2.38). Black male variations and black female variations track closely with total male and total female variations, respectively.

2.21 Notwithstanding those variations, the percentages of HSG accessions coming from each census region have changed in patterns similar to those seen for total (HSG plus Non-HSG) accessions. Figure 2.39 for NPS male HSGs is typical in that it reflects changes analogous to those seen for total NPS males. Similarly, trends for black male HSGs generally follow trends for black males, trends for female HSGs follow the trends for

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total females, and trends for black female HSGs follow trends for black females.

2.22 This similarity in the trends in HSG accessions exists, for the most part, to the state level. Figure 2.40 shows the state changes for total DoD NPS male HSGs.

2.23 The fact that the trends in the distribution of NPS HSG accessions follow the same trends as observed for total NPS accessions by no means indicates that the actual percentages of total NPS accessions and NPS HSG accessions coming from each census region or state are identical. This similarity in trends simply indicates that the differences between the two sets of percentages have not changed much over the past few years. In fact, some major differences have and still do exist. Differences for FY79 in the percentages of total NPS males and NPS male HSG accessions coming from each census region may be seen in Table 2.6. The differences for NPS males are typical of those that exist for NPS black males, NPS females, and NPS black females (although for these subsets the differences often were more pronounced). From the table the following major differences are noted:

- a. For DoD as a whole and for each service, the percentage of NPS male HSGs coming from the South Atlantic Census Region is considerably higher than the percentage of total NPS male accessions coming from the region
- b. With the exception of the Air Force in the East North Central Census Region, for DoD as a whole and for each service, the percentages of NPS male HSGs coming from the East North Central and Pacific Census

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Regions are lower than the percentages of total NPS male accessions coming from these census regions.

ACCESSIONS BY MENTAL GROUP

NPS Male MG I + II Accessions

2.24 After peaking in FY76, the percentage of total NPS male accessions that are MG I + II has fallen steadily (Figure 2.41).

2.25 For the Navy (Figure 2.42) and the other services, the percentages of NPS male MG I + II accessions coming from each census region have changed in a manner similar to the trends seen for total NPS male (all MGs) accessions. For the Army, however, trends in NPS male MG I + II accessions have been considerably different than trends in total NPS male (all MGs) accessions. As may be seen in Figure 2.43, the dramatic increases in the percentage of accessions coming from the South Atlantic Census Region that have been noted for all other subsets of Army accessions has not taken place for NPS male MG I + II accessions. This fact can be observed at the state level in Figure 2.44.

2.26 To further illustrate what has happened in the South Atlantic Census Region, Table 2.7 has been prepared. In this table the percentages of total NPS male and NPS male MG I + II accessions enlisting from the region for FY75 through FY79 are shown as is the ratio of each total NPS male percentage to the corresponding NPS male MG I + II percentage.

2.27 Still another perspective on the situation may be obtained by comparing two measures of recruit quality: high school graduation status and mental group. The percentages of NPS male HSG

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and NPS male MG I + II accessions coming from each census region for FY79 are listed in Table 2.8. Note the size of the differences in these percentages, particularly in the South Atlantic, East South Central, and Pacific Census Regions.

NPS Male MG III Accessions

2.28 As a percentage of total NPS male accessions, NPS male MG III accessions have been increasing since reaching a low in FY76 (Figure 2.45). Similarly, NPS black male MG III accessions have been increasing as a percentage of total NPS black male accessions. In both cases, however, the trends in geographic accessions follow the same patterns as discussed for NPS male accessions and NPS black male accessions, respectively. Furthermore, for FY79, no noteworthy differences exist between the percentages of NPS male (all MGs) accessions and total NPS male MG III from each census region.

NPS Male MG IV Accessions

2.29 The general trends seen in the increasing percentages of accessions coming from the South Atlantic and East South Central Census Regions are present in an even more exaggerated version for NPS male MG IV accessions (Figure 2.46).

2.30 For NPS male MG IV accessions, the result of these trends has been that major differences existed in FY79 between the percentage of total NPS male accessions coming from each census region and the percentage of NPS male MG IV accessions coming from the same region. As shown in Table 2.9, for each service, the South Atlantic, East and West South Central Census Regions produce MG IVs in proportions much higher than expected based on total NPS male accessions results.

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SUMMARY

2.31 The above findings may be summarized in a few sentences as follows:

- a. An increasing proportion of NPS accessions are coming from the southeastern portion of the United States, with a commensurate decrease coming from the west coast and, to a certain extent, the North Central states
- b. These basic trends hold true for all major subsets of NPS accessions except for the upper two mental groups
- c. These basic trends hold true for all services, although they are often more pronounced for the Army
- d. The trends are not simply a result of the fact that an increasing proportion of NPS accessions are black
- e. The trends are not simply due to population shifts
- f. The regions from which an increasing proportion of total NPS accessions have been enlisting are regions in which:
 - the percentages of HSGs and MG IV accessions coming from the region run much higher than expected based on total NPS accessions from the regions
 - the percentages of MG I + II accessions coming from the region run lower than

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expected based on total NPS accessions
from the regions

- g. Differences in the percentages of HSG accessions, total accessions, and MG I + II accessions coming from various regions are particularly high for:
- black accessions
 - Army accessions.

2.32 Much more detail concerning these facts is presented in the next section, Detailed Findings. Conclusions drawn from the findings and recommendations concerning future actions are presented in Section IV.

III. DETAILED FINDINGS

3.1 The detailed findings regarding geographic trends in the quantity and quality of accessions are presented in this section. At the end of the section, trends in one measure of recruiting management and control are described.

NPS MALE ACCESSIONS

By Census Region

3.2 The number of non-prior service (NPS) male enlisted accessions for each service and the total for DoD for FY75 through FY79 are shown in Figure 3.1. During this period total DoD NPS male accessions reached a high of about 371,000 in FY76, falling to about 268,000 in FY78 and FY79.

3.3 Throughout this period, significant changes have occurred in the geographic distribution of NPS male accessions. As shown in Figure 3.2, an increasing proportion of NPS male accessions have been coming from the South Atlantic Census Region and, to a certain extent, the East South Central Census Region. ^{1/} Lesser proportions of the NPS male accessions for each fiscal year have been enlisting from the Pacific and East North Central Regions.

^{1/} See Table 3.1 for a list of states included in each Census District and Region.

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3.4 These same patterns are present, with some notable variations, when looking at the NPS male accessions for each of the individual services (Figures 3.3 through 3.6). For the Army, Navy, and Air Force, the South Atlantic Census Region has supplanted all other regions as the most productive region. For each of the services these gains have come in hand with a significant reduction (particularly since FY76) in the percentage of accessions coming from the East North Central Census Region. During this period, however, the Marine Corps has continued to bring in a high percentage of its accessions from the East North Central Census Region, while simultaneously increasing the percentage coming from the South Atlantic Census Region.

By State

3.5 State by state, 24 states have shown little or no change from FY75 to FY79 in the percentage of the total DoD NPS male accessions that have been enlisted from each state (Figure 3.7). Small changes, upward or downward, in the states' contributions to DoD NPS male accessions have occurred for 13 states and the District of Columbia.

3.6 Significant increases have occurred in six states and the U. S. Territories (treated collectively), while major decreases have occurred in seven states. The magnitude of these changes can be seen in Table 3.2. In FY75, California, Texas, and Michigan provided about 21 percent of the total NPS male accessions, or 50 percent more than the other six states and the U. S. Territories shown. By FY79, the percentage of NPS male accessions coming from the six states and the U. S. Territories exceeded that coming from California, Texas, and Michigan.

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3.7 State-by-state changes between FY75 and FY79 for each service are shown in Figures 3.8 through 3.11. As intimated by the census region graphs, a number of strong similarities are present among the trends observed for each service, while at the same time some interesting differences may be seen.

3.8 The distribution of states across the five categories of descriptors used (Considerable Increase to Considerable Decrease) as well as the range of changes in the percentage of NPS male accessions associated with each category for each service are summarized in Table 3.3. In the table the total number of "states" equals 52, since the figures include the U. S. Territories and the District of Columbia. From this table it may be observed that:

- a. The distributions are not normal. Considerably more states show little or no change than might be expected
- b. On a state-by-state basis, the Air Force has shown the smallest changes in the percentage of NPS male accessions coming from each state, while the Army has shown the largest changes.
- c. For the Marine Corps, if a decrease in the proportion of NPS male accessions coming from a state occurs, the decrease tends to be considerable rather than moderate.

3.9 A total of 27 states plus the District of Columbia and the U. S. Territories showed either a considerable increase or a considerable decrease between FY75 and FY79 in the percentage of NPS male accessions coming from the state for at least one service. These fall into three groups:

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- a. States with trends common to all or most of the services
- b. States with different trends for different services
- c. States with trends unique to one service.

3.10 States with trends common to all or most of the services are listed in Table 3.4. Note that these states include all of the states for which a considerable increase or decrease in the proportion of total DoD NPS male accessions coming from the state was observed. That is, in no case can a considerable increase/decrease for total DoD be attributed to a single service. In fact, in only 2 of the 17 cases shown (Michigan and Georgia) has a considerable increase/decrease taken place for total DoD along with a counter trend (a considerable increase by the USMC in the case of Michigan and somewhat of a decrease by the USMC in the case of Georgia).

3.11 For 10 states, trends in NPS male accessions for one service have been offset, to a greater or lesser degree, by counter trends for the other services. Table 3.5 lists these states and shows the trends involved.

3.12 For five states, trends in NPS male accessions have existed for one or at the most, two services. Table 3.6 lists these states and shows the trends involved.

NPS BLACK MALE ACCESSIONS

By Census Region

3.13 The number of NPS black male enlisted accessions for each service and the total for DoD for FY75 through FY79 are shown

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in Figure 3.12. Notwithstanding the variations in the number of NPS black male accessions, the accessions as a percentage of all NPS male accessions have, except for the Air Force in FY76 and FY77 and the Marine Corps in FY76, increased steadily during this period (Figure 3.13).

3.14 During the period, a polarization of DoD NPS black male accessions has become increasingly pronounced. As shown in Figure 3.14, the proportion of the DoD NPS black male accessions that have come from the South Atlantic Census Region has increased until, DoD wide, over one-third of NPS black male accessions came from the region.

3.15 As might be expected, the pattern for DoD NPS black male accessions is driven primarily by the Army (Figure 3.15), the service with both the highest number of NPS black male accessions and the highest percentage of total NPS male accessions that are black.

3.16 For the Navy (Figure 3.16), the proportion of NPS black male accessions coming from the South Atlantic Census Region has increased, however, by no means as dramatically as seen for the Army.

3.17 For the Air Force, a different pattern emerges. With relatively small changes between FY75 and FY79 in both the number of NPS black male accessions and the percentage of total NPS male accessions that are black, the dramatic increase in the proportion of NPS black males coming from the South Atlantic Census Region has not occurred for the Air Force. Rather, as shown in Figure 3.17, some increase in the proportion of NPS black males coming from the Middle Atlantic Census Region has taken place,

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with a corresponding decrease seen for the West South Central Region.

3.18 For the Marine Corps, Figure 3.18, yet a different pattern emerges. Notwithstanding the fact that, similar to the situation found for the Army, NPS black male Marine Corps accessions have increased as a percentage of total Marine Corps NPS male accessions, the South Atlantic Census Region has not become the overwhelming supplier of black Marine recruits.

By State

3.19 For 32 states, the District of Columbia, and the U. S. Territories, little or no change occurred between FY75 and FY79 in the percentage of the total DoD NPS black male accessions that were enlisted from each state/area (Figure 3.19). Four states exhibited somewhat of an increase and a like number showed somewhat of a decrease.

3.20 Considerable increases in the proportion of the Total DoD black male accessions provided by each state occurred for four adjacent states in the South East and Maryland, while considerable decreases occurred in six widely distributed states. Collectively, the 10 states for which considerable increases or decreases occurred accounted for about 50 percent of the total DoD NPS black male accessions in both FY75 and FY79 as shown in Table 3.7. During this period, however, the proportion coming from Georgia, Florida, Alabama, South Carolina, and Maryland has increased substantially.

3.21 Looking at NPS black male accessions changes by state for each service, the changes for the Army, Figure 3.20, are almost identical to those observed for total DoD. This is a natural

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result of the fact that Army NPS black male accessions are considerably greater, both in numbers and as a percentage of total NPS male accessions, than the other services, and hence dominate the DoD totals.

3.22 For the Navy, Figure 3.21, the decreases shown for DoD and the Army in California have not occurred. Furthermore, Michigan has shown a considerable increase for the Navy, vice the decrease that occurred for the other services.

3.23 For the Air Force, Figure 3.22, major increases have occurred in a group of states clustered about New York, while North Carolina exhibits a considerable decrease not seen for the Army or Navy.

3.24 For the Marine Corps, Figure 3.23, the states showing considerable increases and decreases in the percentage of total Marine Corps NPS black male accessions coming from each state do not form the tight groupings they do for the other services. Furthermore, Michigan, North Carolina, and Alabama exhibit trends directly opposite to those shown for the Army.

3.25 Table 3.8 is a summary of the distribution of states among the five descriptive categories and the range of percentage changes (FY75 to FY79) associated with each category for NPS black male accessions. All told, the percentage of NPS black male accessions coming from a state showed a considerable increase or decrease for at least one service in 20 states and the District of Columbia. These states and the trends for each state for each service are shown in Table 3.9. From Tables 3.8 and 3.9 the following may be noted:

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- a. The changes in the percentages of NPS black male accessions coming from each state are, for DoD and each service, one and one-half to two and one-half times as large as changes for NPS male (all races) accessions
- b. The clustering of states into the category "Little or No Change" is even more pronounced when considering changes in the percentage of NPS black male accessions coming from each state than it was when considering the analogous changes in NPS male (all races) accessions
- c. The states and the general trends listed for NPS black male accessions are quite similar to those listed in Tables 3.4 through 3.6 covering NPS male (all races) accessions. States where either a major trend exists for NPS black male accessions where no trend existed for total NPS males or where the NPS black male accession trend is the opposite to the total NPS male accession trend include:
 - New Jersey (Marine Corps)
 - New York (Total DoD, Navy, and Marine Corps)
 - Michigan (Navy)
 - Wisconsin (Total DoD, Army, and Marine Corps)
 - North Carolina (Air Force)
 - Alabama (Marine Corps)
 - Louisiana (Total DoD and Army)

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- Texas (Air Force)
- California (Navy).

NPS FEMALE ACCESSIONS

By Census Region

3.26 The number of NPS female enlisted accessions for each service and the total for DoD for FY76 through FY79 are shown in Figure 3.24. Although there have been variations among the services, for total DoD, female accessions as a percentage of all NPS accessions have increased steadily during this period (Figure 3.25).

3.27 The same general changes observed for the geographic distribution of NPS male accessions are seen for the NPS female accessions (Figure 3.26); that is, an increasing proportion of NPS female accessions are coming from the South Atlantic Census Region, while lesser proportions have been enlisting from the Pacific and East North Central Regions. The proportion of NPS female accessions enlisting from the West South Central Region has also been increasing.

3.28 For total DoD, where the trends in the percentage of NPS female accessions coming from each census region do differ from the analogous trends for NPS male accessions, the net result has been that differences that existed in FY76 between the percentage of NPS male and NPS female accessions coming from various census regions have been virtually eliminated by FY79. As shown in Table 3.10, for FY79, excluding the U. S. Territories, the percentages of NPS male and NPS female accessions coming from each census region were within 0.4 percent of each other for every census region. This fact appears to

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be more of a coincidence than a plan, since, as also shown in Table 3.10, significant differences between the percentage of NPS male and NPS female accessions coming from each census region do exist for each of the services.

3.29 The NPS female accession patterns for each service are presented in Figures 3.27 through 3.31. These patterns are quite similar both to each other and to the NPS male patterns. Notwithstanding the fact that differences between NPS male and NPS female accessions from each census region exist as noted above, except for two cases these differences have narrowed or remained essentially the same since FY76. The two exceptions are the Middle Atlantic Census Region for the Army and the Pacific Census Region for the Marine Corps.

By State

3.30 The changes between FY76 and FY79 in the percentage of NPS female accessions coming from each state for all DoD, the Army, Navy, Air Force, and Marine Corps are shown in Figures 3.31 through 3.35, respectively. The distribution of the states and the ranges of changes falling into each of the categories used on the maps are summarized in Table 3.11.

3.31 Given that during the period covered, male NPS accessions were declining while female NPS accessions were increasing (both in total numbers and as a percentage of total accessions), it is interesting that, with certain notable exceptions, the state-by-state trends in the percentage of NPS male and NPS female accessions coming from each state are quite similar, particularly for the Army and Navy.

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3.32 DoD wide, NPS male and NPS female accession trends are very close except in:

- a. Virginia and Alabama, where the considerable increase in percentage of NPS male accessions coming from the state did not occur for NPS females
- b. Oklahoma and Texas, where the considerable decrease in the percentage of NPS male accessions coming from the state was accompanied by little or no change to the NPS female percentage in the case of Oklahoma, and a considerable increase in the NPS female percentage in the case of Texas.

3.33 Service by service, the states where major differences between NPS male and NPS female trends occur are:

- a. Army:
 - New Jersey (considerable increase, males; little or no change, females)
 - Maryland (little or no change, males; considerable increase, females)
 - Virginia and Alabama (considerable increase, males; little or no change, females)
 - Texas (considerable decrease, males; considerable increase, females).
- b. Navy:
 - New York (little or no change, males; considerable increase, females)

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- Virginia (considerable increase, males; little or no change, females)
- Texas and Colorado (considerable decrease, males; little or no change, females).

c. Air Force:

- Connecticut, New York, Pennsylvania, and Maryland (considerable increase, males; considerable or somewhat of a decrease, females)
- North Carolina and Texas (little or no change, males; considerable increase, females)
- Kentucky and Michigan (considerable decrease, males; somewhat of an increase or little or no change, females).

d. Marine Corps:

- Maryland and New Jersey (considerable increase, males; little or no change or somewhat of a decrease, females)
- Kansas, Minnesota, and North Carolina (considerable decrease, males; little or no change or somewhat of an increase, females)
- Ohio and Virginia (somewhat of an increase, males; considerable decrease, females).

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NPS BLACK FEMALE ACCESSIONS

By Census Region

3.34 The number of NPS black female enlisted accessions for each service and the total for DoD for FY76 through FY79 are shown in Figure 3.36. Very small changes in both the number of NPS black female accessions and the percentage of total NPS female accessions that were black (Figure 3.37) occurred between FY76 and FY77; however, dramatic increases took place in both FY78 and FY79. These increases parallel the increases for NPS female accessions and in fact, the trends in NPS black female accessions as a percentage of total NPS black accessions (Figure 3.38) are basically the same as the trends in total NPS female accessions as a percentage of total NPS accessions.

3.35 The percentages of NPS black female accessions coming from each census region for FY76 through FY79 are plotted for DoD and each service in Figures 3.39 through 3.43. Essentially, the NPS black female trends bear the same relationship to NPS black male trends as trends in NPS female (all races) did to NPS male (all races). In this case, however, some significant differences remained in FY79 between the percentage of NPS black females coming from a census region and the percentage of NPS black males coming from the region. As shown in Table 3.12, particularly large differences exist:

- a. In the West North Central Census Region
(Marine Corps)
- b. In the South Atlantic Census Region
(Navy and Marine Corps)
- c. In the West South Central Census Region
(Navy and Air Force).

By State

3.36 The changes between FY76 and FY79 in the percentage of NPS black female accessions coming from each state for all DoD, the Army, Navy, Air Force, and Marine Corps are shown in Figures 3.44 through 3.48, respectively. The distribution of the states and the ranges of changes falling into each of the categories used on the maps are summarized in Table 3.13.

3.37 State-by-state trends in the percentage of NPS black female accessions coming from each state follow closely the trends for NPS black male accessions. States where significant trends in NPS black female accessions exist but no trend or the opposite trend exists for NPS black male accessions are:

- Illinois (total DoD and Army)
- Maryland (Army)
- Alabama (total DoD and Army)
- Pennsylvania (total DoD, Navy, and Marine Corps)
- Virginia (total DoD and Army)
- Texas (Army)
- California and Michigan (Navy)
- South Carolina and New York (Air Force and Marine Corps)
- Georgia (Marine Corps).

NPS MALE HIGH SCHOOL GRADUATE ACCESSIONS

By Census Region

3.38 The number of NPS male high school graduate (HSG) accessions for DoD and each service for FY75 through FY79 are shown in Figure 3.49. During this period, NPS male HSG accessions as a percentage of total NPS male accessions have varied (see Figure 3.50) from a low of about 50 percent for the Marine Corps in FY75, to a high of over 92 percent for the Air Force in FY77. Interestingly, notwithstanding the general decline in the number of NPS male HSG accessions and the rather large fluctuations in the percentage of each service's total NPS male accessions that are HSGs, the proportion of the total DoD NPS male HSG accessions that have enlisted in each service has remained relatively stable over the past five years (Figure 3.51).

3.39 The percentages of NPS male HSG accessions enlisting in each census region are shown for total DoD and for each service in Figures 3.52 through 3.56. The trends in these percentages track closely with the analogous trends for total NPS male accessions. There are, however, notable differences between the percentage of total NPS male accessions coming from various census regions and the percentage of NPS male HSGs coming from the census regions. The two sets of percentages are listed for FY79 in Table 3.14. From the table the following pertinent facts may be observed:

- a. For DoD as a whole and for each service, the percentage of NPS male HSGs coming from the South Atlantic Census Region is considerably higher than the percentage of total NPS male accessions coming from the region

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- b. With the exception of the Air Force in the East North Central Census Region, for DoD as a whole and for each service, the percentages of NPS male HSGs coming from the East North Central and Pacific Census Regions are moderately lower than the percentages of total NPS male accessions coming from these census regions.

By State

3.40 The changes between FY75 and FY79 in the percentage of NPS male HSG accessions coming from each state are shown in Figures 3.57 through 3.61 for DoD and each service. Except for a handful of states, which show a considerable increase/decrease for NPS male HSGs while showing only somewhat of an increase/decrease for total NPS male accessions (or vice versa), the Roadmaps for NPS male HSGs are virtually identical to those for total NPS male accessions.

3.41 The distribution of states and the ranges of changes corresponding to each category used on the maps are summarized in Table 3.15 for NPS male HSG accessions. The ranges shown on Table 3.15 are typically 20 to 50 percent higher than the analogous ranges for total NPS male accessions (i.e., although the states falling into each category are basically the same for total NPS male accessions and for NPS male HSG accessions, the increase/decrease in the percentage of NPS male HSGs coming from each state tends to be 20 to 50 percent higher than the increase/decrease in the percentage of total NPS male accessions coming from the state).

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NPS BLACK MALE HIGH SCHOOL GRADUATE ACCESSIONS

By Census Region

3.42 The number of NPS black male HSG accessions, NPS black male HSG accessions as a percentage of total NPS black male accessions, and the service shares of total DoD NPS black male HSGs for the period FY75 to FY79 are shown in Figures 3.62, 3.63, and 3.64, respectively. Although the total number of NPS male HSG accessions declined during this period, the total number of NPS black male HSG accessions increased. The increases prior to FY78 were primarily contained in the Army. FY79 decreases in Army NPS black male HSG accessions were countered somewhat by small increases by the other services.

3.43 Throughout the period, the percentage of NPS black male accessions that were HSGs generally exceeded the percentage of NPS male (all races) accessions that were HSGs. This phenomenon is true both for total DoD and for each service.

3.44 The percentages of NPS black male HSG accessions coming from each census region during the period are shown for DoD and each service in Figures 3.65 through 3.69. As might be expected, these graphs closely resemble the analogous graphs for NPS black male accessions. As was the case for total NPS male HSG accessions, differences exist between the distribution of total NPS black male accessions and NPS black HSG accessions. In this case, however, the differences are more pronounced. As may be seen from Table 3.16, for total DoD, the percentage of NPS black male HSG accessions coming from the South Atlantic Census Region was nearly 4 percent higher in FY79 than the percentage of total NPS black male accessions coming from the region. On the other hand, for the East North Central Census Region, the percentage

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of NPS black male HSG accessions that enlisted from the region was about 2 percent lower than the percentage of total NPS black male accessions coming from the region. Similar major differences may be seen for each of the services with the exception of the Air Force. For the Air Force, only relatively minor differences existed in FY79 between the proportion of NPS black male accessions and the proportion of NPS black male HSG accessions coming from each census region.

By State

3.45 Changes between FY75 and FY79 in the percentage of NPS black male HSG accessions coming from each state are shown for DoD and each service in Figures 3.70 through 3.74. Table 3.17 summarizes these changes. These changes are, with the exception of a handful of states which move from a considerable increase/decrease to somewhat of an increase/decrease, or vice versa, are virtually identical to the maps for total NPS black male accessions. This may be interpreted to mean that, state-by-state, disparities between the proportions of NPS black male HSG accessions coming from the various states have remained relatively unchanged since FY75.

NPS FEMALE HIGH SCHOOL GRADUATE ACCESSIONS

By Census Region

3.46 Except for the Army in FY77, the number of NPS female HSG accessions for each service has been rising steadily during the period FY76 to FY79 (Figure 3.75). During this period, the percentage of NPS females that are HSGs has remained relatively constant at about 90 percent for total DoD, although significant variations have occurred for each service as shown in Figure

3.76. Small changes have occurred in the percentage of the total DoD NPS female HSGs that have enlisted in each service (Figure 3.77).

3.47 Figures 3.77 through 3.82 are graphs of the percentage of NPS female HSG accessions enlisting from each census region for DoD and each service. It is not surprising, in view of the high percentage of total NPS female accessions that are HSGs, that the graphs are almost identical to the analogous graphs for total NPS female accessions. Some variations do exist, however. Table 3.18 compares the percentage of NPS female accessions and NPS female HSG accessions enlisting in each census region for DoD and each service for FY79. Major differences exist for the Navy and the Air Force (the services with the lowest percentages of NPS female accessions that were HSGs in FY79). The largest differences for these services occur in the Middle Atlantic and South Atlantic Census Regions (with NPS female HSGs being enlisted at a higher proportion than total NPS females) and the West South Central and Pacific Census Regions (where the opposite is true).

By State

3.48 State-by-state, changes between FY76 and FY79 in the percentage of NPS female HSG accessions coming from each state are nearly identical (for DoD and each service) to the analogous changes for total NPS female accessions. The only significant differences are:

- a. Total DoD: Louisiana, where the percentage of NPS female HSGs coming from the state showed somewhat of an increase, while the percentage of total NPS female accessions showed somewhat of a decrease

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- b. Army: none
- c. Navy: New York, with a considerable increase in the percentage of NPS female HSGs coming from the state versus little or no change in the percentage of total Navy NPS female accessions coming from the state
- d. Air Force: Texas, with little or no change (NPS female HSGs) versus significant increase (total NPS females); Washington, with a significant decrease (NPS female HSGs) versus little or no change (total NPS females)
- e. Marine Corps: Texas, with little or no change (NPS female HSGs) versus significant decrease (total NPS females).

3.49 Since the differences in trends between NPS female HSGs and total NPS female accessions are so small, separate maps have not been prepared for NPS female HSGs. However, a summary of NPS female HSG trends is presented in Table 3.19.

NPS BLACK FEMALE HIGH SCHOOL GRADUATE ACCESSIONS

3.50 As shown in Figure 3.63, a very high proportion of NPS black females are HSGs. Furthermore, the distribution of NPS black female HSG accessions among the services has not changed much over the past few years. It is not surprising, therefore, that both the actual percentages as well as the changes in percentages of black female HSG accessions coming from each census region and state track very closely to the total NPS black female percentages and changes in percentages. In view of this, separate maps and graphs for NPS black female HSGs have not been prepared.

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3.51 The percentages of NPS black female accessions and NPS black female HSG accessions coming from each census region in FY79 are listed in Table 3.20 for DoD and each service. The only noteworthy differences between the two sets of percentages are for the Navy and Air Force in the South Atlantic Census Region. For these services, the South Atlantic Census Region produces somewhat of a higher proportion of NPS black female HSGs than would be expected based on the proportion of NPS black females coming from the census region. For all the services, the relationships between the proportions of NPS black females and NPS black female HSG accessions coming from each state have remained relatively constant since FY76 (i.e., there are no significant differences between the state-by-state changes in the percentage of NPS black female accessions coming from each state and the changes in the percentage of NPS black female HSG accessions coming from each state).

NPS MALE MENTAL GROUP I + II ACCESSIONS

By Census Region

3.52 After peaking in FY76, the number of NPS Male Mental Group (MG) I + II accessions have declined precipitously through FY79 (Figure 3.85). This decline has been experienced by each service and has been much more accentuated than the decline in total NPS (all MGs) accessions. As shown in Figure 3.86, DoD-wide, NPS male MG I + II accessions equated to over 39 percent of total NPS male accessions in FY76, but only about 26 percent of total NPS male accessions in FY79.

3.53 Proportionately, the declines have been most severe for the Army. The percentages of total DoD NPS male MG I + II accessions that enlisted in each service for FY75 through FY79 are shown in

Figure 3.87. In FY75 nearly 35 percent of the total NPS male MG I + II accessions went into the Army; by FY79 that percentage had declined to 25 percent.

3.54 The percentage of NPS male MG I + II accessions coming from each census region are shown for FY75 through FY79 for total DoD and each service in Figures 3.88 through 3.92. These graphs differ in two respects from the analogous graphs of total NPS male accessions:

- a. Major differences exist between the proportion of NPS male (all MGs) accessions coming from each census region and the proportion of NPS male MG I + II accessions coming from the same census region
- b. For the Army, the trends in the percentage of NPS male MG I + II accessions coming from each census region differ from analogous trends in NPS male (all MGs) accessions.

3.55 The observation that some differences may be found between the percentage of a set of accessions coming from a census region and the percentage of a subset of that set coming from same census region has been made several times in this report (e.g., differences between total males and male HSGs, black males and black male HSGs, etc.). The differences between total NPS male and NPS male MG I + II accessions, however, are much larger and more widespread than differences previously discussed. The percentages of total NPS male and NPS male MG I + II accessions enlisting from each census region in FY79 are shown for DoD and each service in Table 3.21. The geographic distribution of NPS male MG I + II differs markedly from the distribution of NPS

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male (all MGs) in that the Middle Atlantic (except for the Army), South Atlantic, East South Central, West South Central, and other/U. S. Territories Census Regions produce NPS male MG I + II accessions in proportions that are significantly lower than the percentages of total NPS male accessions coming from these regions. For all services, the New England, East and West North Central, Mountain, and Pacific Census Regions produce percentages of NPS male MG I + II accessions which are considerably higher than the percentages of total NPS male (all MGs) accessions coming from these regions.

3.56 These differences in the percentages of total NPS male and NPS male MG I + II accessions coming from the various census regions are particularly pronounced for the Army. For the other services, the absolute values of the differences are lower than those for the Army, but still relatively high compared to differences observed in other subsets of the total NPS male accessions.

3.57 Note also that, except for the New England and West South Central Census Regions, the differences between the percentage of total NPS male accessions coming from a census region and the percentage of NPS male MG I + II accessions coming from the same census region tend to be of opposite sign than the differences for NPS males and NPS male HSGs. This is particularly interesting in that both Mental Group and High School Graduate status are used as measures of recruit quality. The percentages of NPS male MG I + II and NPS male HSG accessions enlisting from each census region for FY79 are listed in Table 3.22. Huge differences may be seen in this table starting with the 10.2 percent difference for the Army for the South Atlantic Census Region.

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3.58 As stated above, not only are the values of the percentages of total NPS male and NPS male MG I + II accessions coming from each census region different, but, for the Army, different trends in the two sets of percentages have occurred since FY75. The most notable difference in trends is for the South Atlantic Census Region. For the Army in FY75, 17.7 percent of the total NPS male accessions enlisted from the South Atlantic Census Region while 16.4 percent of the NPS male MG I + II Army accessions came from the region (a ratio of 1.08 to 1). In FY79, the NPS male and NPS male MG I + II percentages for the region for the Army were 22.8 percent and 16.3 percent, respectively (a ratio of 1.40 to 1). In other words, during the period a dramatic increase occurred in the percentage of Army NPS male accessions that enlisted from the census region, while the percentage of Army NPS MG I + II accessions coming from the region remained virtually unchanged.

3.59 NPS male and NPS male MG I + II percentages for the South Atlantic Census Region are compared for DoD and each service in Table 3.23. As can be seen from the table, the increase in the percentage of total NPS male accessions coming from the census region was, for each service except the Army, accompanied by a similar increase in the percentage of NPS male MG I + II coming from the region (i.e., the ratios of the percentages of total NPS males to the percentages of NPS male MGs I + II stayed relatively constant).

By State

3.60 The changes between FY75 and FY79 in the percentage of NPS male MG I + II accessions are shown for each state for DoD and each service in Figures 3.93 through 3.99. Summary information is listed in Table 3.24. For the Navy, Air Force, and Marine Corps,

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the significant differences between trends in NPS male MG I + II and total NPS male accessions are limited to:

- a. Navy: New York, with a considerable increase in the percentage of NPS male MG I + II accessions coming from the state, but little or no change in the percentage of total NPS male accessions coming from the state
- b. Air Force: Illinois (considerable increase, NPS male MG I + II; little or no change, total NPS male); Georgia (little or no change, NPS male MG I + II; considerable increase, total NPS male); Louisiana (somewhat of a decrease, NPS male MG I + II; somewhat of an increase, total NPS male)
- c. Marine Corps: Washington (considerable increase, NPS male MG I + II; somewhat of a decrease, total NPS male); Indiana and Massachusetts (considerable increase, NPS male MG I + II; little or no change, total NPS male); Kentucky (somewhat of a decrease, NPS male MG I + II; somewhat of an increase, total NPS male); West Virginia (opposite of Kentucky); District of Columbia (little or no change, NPS male MG I + II; considerable increase, total NPS male).

3.61 As noted under the discussion of census regions, major differences exist for the Army. For the Army, Washington showed little or no change for NPS MG I + II, but a considerable decrease in the percentage of total NPS male accessions coming

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from the state. Other major changes occurred in every state in the south east section of the map, except Florida.

NPS BLACK MALE MENTAL GROUP I + II ACCESSIONS

By Census Region

3.62 The number of NPS black male MG I + II accessions for FY75 through FY79 for DoD and each service are shown in Figure 3.98. The curves in the figure follow the same pattern as the curves for total NPS male MG I + II (all races) accessions except that the numbers are much smaller. Similarly, the curves for NPS black male MG I + II accessions as a percentage of total NPS black male accessions (Figure 3.99) are similar in shape (but with significantly lower percentages involved) to the analogous NPS male MG I + II (all races) curves.

3.63 The distribution of NPS black male MG I + II accessions among the various services for FY75 through FY79 is shown in Figure 3.100. As was seen for total NPS male MG I + II (all races) accessions, the proportions enlisting in the Army and Marine Corps have dropped as higher shares have been enlisting in the Navy and Air Force.

3.64 The percentages of NPS black male MG I + II accessions coming from each census region for FY75 through FY79 are shown for DoD and each service in Figures 3.101 through 3.105. These graphs show patterns that represent an interesting mixture of a number of patterns seen thus far:

- a. The rank order of the various census regions is closer to that seen for NPS black males

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(all MG) than seen for NPS male MG I + II
(all races)

- b. The actual values of the percentages of NPS black male MG I + II accessions coming from each census region differ from the NPS black male and NPS black male HSG percentages in essentially the same patterns that were discussed above for NPS male MG I + II accessions (all races)
- c. As was the case for NPS male MG I + II (all races), the percentages of NPS black male MG I + II accessions coming from the South Atlantic Census Region have not risen dramatically as they have for NPS black male (all MG) accessions. Unlike NPS male MG I + II (all races), however, the percentage of NPS black male MG I + II accessions coming from the East North Central Census Region has increased, particularly for the Army and the Marine Corps.

By State

3.65 The changes (FY75 to FY79) in the percentage of NPS black male MG I + II accessions enlisting from each state are shown for DoD and each service in Figure 3.106 through 3.110. States in which the trends for NPS black male MG I + II accessions are significantly different from the trends for NPS black male (all MG) accessions are:

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- a. DoD: New York, Pennsylvania, Michigan, Illinois, Virginia, North and South Carolina, Georgia, Alabama, and Mississippi
- b. Army: New York, Maryland, Virginia, North and South Carolina, Georgia, Alabama, Mississippi, Arkansas, Oklahoma, Illinois, and California
- c. Navy: Pennsylvania, North and South Carolina, Florida, Alabama, Tennessee, Arkansas, Mississippi, Missouri, Indiana, Wisconsin, and California
- d. Air Force: South Carolina, Georgia, Florida, Alabama, Mississippi, Illinois, and California
- e. Marine Corps: New York and New Jersey.

3.66 Information contained on the maps is summarized in Table 3.25.

NPS MALE MENTAL GROUP III ACCESSIONS

By Census Region

3.67 The number of NPS male MG III accessions, NPS male MG III accessions as a percentage of total NPS male accessions, and the percentage of total DoD NPS male MG III accessions enlisting in each service are shown for FY75 through FY79 in Figures 3.111, 3.112, and 3.113, respectively. The percentage of NPS male MG III accessions enlisting in each census region for the same years are shown for DoD and each service in Figures 3.114 through 3.118.

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3.68 Although the percentage of NPS male accessions that have been MG III has been increasing for DoD and each service since FY76, the changes that have occurred in the geographic distribution of NPS male MG III accessions follow closely the analogous changes in total NPS male accessions. A comparison of the percentage of total NPS males and NPS male MG III accessions enlisting from each census region in FY79 is made in Table 3.26. Where differences in the two sets of percentages do exist, the differences for FY79 are representative of those existing throughout the period FY75 through FY79.

3.69 For the Army, differences between the percentages of NPS male and NPS male MG III accessions enlisting from each census region are negligible. For the Navy, moderate differences exist for the Middle Atlantic, East South Central, Mountain, and Pacific Census Regions. For the Marine Corps, moderate differences exist for the South Atlantic and East South Central Census Regions.

3.70 For the Air Force, the service with the lowest percentage of total NPS male accessions that are MG III, the differences between the percentages of NPS male and NPS male MG III accessions coming from each census region are larger than those seen for the other services, particularly in the East and West North Central, South Atlantic, and East and West South Central Census Regions. Again, the differences existing in FY79 represent little or no change from those existing in FY75.

By State

3.71 State-by-state changes between FY75 and FY79 in the percentage of NPS male MG III accessions coming from each state are shown for DoD and each service in Figures 3.119 through

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3.123. Data on the maps is summarized in Table 3.27. As may have been anticipated by the fact that census region trends in NPS male and NPS male MG III percentages tracked so closely, there are no substantive differences between these maps and the maps for NPS male (all MGs) accessions.

NPS BLACK MALE MENTAL GROUP III ACCESSIONS

By Census Region

3.72 NPS black male MG III accessions for DoD and each service for FY75 through FY79 are shown in Figure 3.124. The graphs of NPS black male MG III accessions as a percentage of total NPS black male accessions (Figure 3.125) are a parody of the analogous graphs for NPS male MG III (all races) accessions in that, with the exception of the Navy in FY79, the percentages have been rising steadily since FY76. For NPS black male MG III, however, the percentages are much higher than seen for NPS male MG III (all races). As seen in Figure 3.126, the preponderance of NPS black male MG III accessions end up in the Army.

3.73 Figures 3.127 through 3.131 are the graphs of the percentages of NPS black male MG III accessions enlisting from each census region for FY75 through FY79 for DoD and each service. These graphs follow the same general trends as seen for NPS black male accessions. Although differences exist between the NPS black male and NPS black male MG III accessions (see Table 3.28), these differences have not changed much since FY75.

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By State

3.74 The changes (FY75 to FY79) in the percentage of NPS black male MG III accessions coming from each state are shown for DoD and each service in Figures 3.132 through 3.136. Summary information is presented in Table 3.29. No significant differences exist between the changes seen for NPS black male and NPS black male MG III accessions.

NPS MALE MENTAL GROUP IV ACCESSIONS

By Census Region

3.75 As occurred with the NPS male MG I + II accessions, the NPS male MG IV accessions peaked in FY76 and have since declined (Figure 3.137). Even though there has been a general decline in the number of NPS male MG IV accessions, the Army NPS MG IV accessions have been increasing both as a percentage of total Army NPS male accessions (Figure 3.138) and as a percentage of total DoD NPS MG IV accessions (Figure 3.139).

3.76 The percentage of NPS male MG IV accessions enlisting in each census region from FY75 through FY79 for total DoD and each service are shown in Figures 3.140 through 3.144. There has been an extreme polarization of NPS male MG IV accessions over the period. As of FY79, the South Atlantic Region is contributing approximately 30 percent of all male MG IV enlistments as compared to 14 percent coming from the region in FY75. The percentages of NPS male MG IV accessions coming from all of the other census regions have been decreasing except for the East South Central Census Region and the U. S. Territories.

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3.77 The geographic distribution of the Army NPS male MG IV accessions is identical to the pattern seen for total DoD (as expected, since the Army enlists over 60 percent of the MG IV accessions). A comparison of the percentage of total NPS males and NPS male MG IV accessions enlisting from each census region in FY79 is made in Table 3.30. From this table, several observations can be made:

- a. For total DoD and each service, the percentage of MG IV accessions coming from the South Atlantic, East South Central, and West South Central Census Regions are significantly greater than the percentage of total NPS male accessions coming from the region
- b. For the other census regions, the NPS male MG IV percentages are approximately the same or less than the total NPS male accession percentages
- c. For the Army, the U. S. Territories input a considerably higher percentage of NPS male MG IV accessions than total NPS male accessions.

By State

3.78 State-by-state changes between FY75 and FY79 in the percentage of NPS male MG IV accessions coming from each state are shown for DoD and each service in Figures 3.145 through 3.149 and are summarized in Table 3.31. The state-by-state changes are nearly the same (with the exception of the Air Force) to the analogous changes for total NPS male accessions. The only significant differences are:

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- a. Total DoD: Pennsylvania, where the percentage of NPS male MG IV coming from the state showed somewhat of a decrease, while the percentage of total NPS male accessions showed somewhat of an increase
- b. Army: Illinois and Ohio, with somewhat of a decrease for NPS male MG IVs compared with somewhat of an increase and a considerable increase, respectively, in total NPS male accessions; Oregon and New Jersey, with no change in NPS male MG IVs versus a considerable decrease for total NPS males
- c. Navy: Michigan and Pennsylvania, with a considerable decrease (NPS male MG IVs) compared with little or no change and a considerable increase in NPS male accessions, respectively; Texas, which showed somewhat of an increase (NPS male MG IVs) as opposed to a considerable decrease (total NPS male accessions); Maryland, where no change occurred in the percentage of male MG IVs while a considerable increase took place for total NPS male accessions
- d. Marine Corps: Arkansas, Louisiana, and West Virginia, which had increases in the percentage of NPS male MG IV accessions, while the total NPS male accessions showed decreases; Ohio and North Dakota, with both showing somewhat of an increase for NPS total male accessions; Oklahoma and Texas, each with considerable decreases in NPS male accessions, had no changes and somewhat of an increase, respectively, for NPS male MG IVs.

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3.79 The NPS male MG IV accessions for the Air Force account for less than one-half of 1 percent of the total Air Force NPS male accessions. Although a state map and summarized data are included, the information to be obtained at the state level is not meaningful due to the very small number of MG IV accessions. The Air Force enlisted a total of 82 NPS male MG IVs in FY79.

NPS BLACK MALE MENTAL GROUP IV ACCESSIONS

By Census Region

3.80 The number of NPS black male MG IV accessions, NPS black male MG IV accessions as a percentage of total NPS black male accessions, and the percentage of total DoD NPS black male MG IV accessions enlisting in each service are shown for FY75 through FY79 in Figures 3.150, 3.151, and 3.152, respectively. The percentage of NPS black male MG IV accessions enlisting in each census region for the same years are shown for DoD and each service (except the Air Force) in Figures 3.153 through 3.156. Census region graphs and the state map for the Air Force have not been prepared due to the very small number of Air Force NPS black male MG IV accessions.

3.81 Comparisons of the NPS black male MG IV accessions with total NPS black male accessions are essentially identical to those made comparing NPS male MG IV and NPS male accessions. The Army's share of NPS black male MG IV accessions, while more constant than seen with the all-races male MG IVs, has averaged about 80 percent for the previous five years. The same polarization seen for total male MG IVs has occurred for the Army in the South Atlantic Census Region specifically (approaching 42 percent in FY79), and the South Census District generally. As a result of the rapid increase in the percentage of NPS black male MG IV

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accessions coming from the South Atlantic Census Region, all of the other regions' percentages have been decreasing, including the East South Central and the West South Central Census Regions. However, as can be seen in the comparison of the percentage of NPS black males and NPS black male MG IVs enlisting from each census region for FY79 (Table 3.32), the percentage of black MG IV accessions from these two regions exceeds the percentage of total black male accessions.

By State

3.82 The changes (FY75 to FY79) in the percentage of NPS black male MG IV accessions coming from each state are shown for DoD and each service (except the Air Force) in Figures 3.157 through 3.160. Summary information is shown in Table 3.33. Only the state map for DoD (which is identical to that for the Army) has significance due to the relatively small numbers of black male MG IV enlistments from each state for each service. The only difference noted in comparing NPS black male MG IV accessions with the all-races male MG IV accessions is Arkansas and Louisiana which show somewhat of a decrease (black male MG IVs). Comparing the percentage changes by state of the black male MG IVs with the total NPS black male accessions shows significant differences in Illinois, Indiana, Ohio, and Pennsylvania, all with decreases, while for the total NPS black male accessions these same states were either unchanged or had somewhat of an increase.

NPS MALE ACCESSION SERVICE SHARES

By Census Region

3.83 The percentage of the total DoD NPS male accessions enlisting in each service for the entire United States and for each

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census region (FY75 to FY79) are shown in Figures 3.162 through 3.172. The patterns in the percentage share by service by census region are generally the same in that the Army achieved a lesser share from FY75 through FY78 and in FY79 either maintained the FY78 level or had some increase.

By State

3.84 Maps of the percentage change (FY75 to FY79) for each service's share of NPS male accessions enlisting from each state are shown in Figures 3.173 through 3.176. A comparison of these maps with those states which had considerable increases/decreases in the change of total DoD NPS male accessions show:

- a. For states with considerable increases in total DoD NPS male accessions:
 - Florida: the Army had a considerable increase in service share while the Air Force experienced a considerable decrease
 - Georgia: a considerable decrease occurred for the Marine Corps. This decrease was spread relatively evenly among the other services
 - Virginia: no significant changes in service shares of NPS male accessions
 - Maryland: no significant changes in service shares of NPS male accessions
 - Alabama: the Army showed a considerable increase and the Marine Corps a considerable decrease in their shares of NPS male accessions

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- South Carolina: a considerable increase occurred for the Army and a considerable decrease for the Air Force in service shares of accessions for the state.
- b. For states with considerable decreases in total DoD NPS male accessions:
 - California: no significant changes in service shares of NPS male accessions
 - Texas: no significant changes in service shares of NPS male accessions
 - Washington: no significant changes in service shares of NPS male accessions
 - Michigan: a considerable decrease for the Army and a corresponding increase for both the Navy and Marine Corps in the service share of accessions for the state
 - Wisconsin: for the Air Force, service shares increased considerably at the expense of the other services
 - Minnesota: a considerable decrease occurred for the Navy and a considerable increase for the Air Force in shares of state accessions enlisting in each service
 - Oklahoma: a considerable decrease occurred in the percentage of NPS male accessions from the state which enlisted in the Marine Corps.

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NPS FEMALE ACCESSION SERVICE SHARES

By Census Region

3.85 The percentage of the total DoD NPS female accessions enlisting in each service for the entire United States and for each census region (FY76 to FY79) are shown in Figures 3.177 through 3.187. The pattern for the entire United States shows that the Army has experienced a steady decrease in the share of NPS female accessions which, up to FY78, was associated with a steady increase in the Air Force percentage of NPS female enlistments. In FY79 a substantial increase in the Navy's percentage occurred. The Army's decrease in the percentage of NPS female accessions can be seen in all of the census regions with the exception of the South Atlantic Census Region and the U. S. Territories. Note, however, that the steady percentage increase achieved by the Air Force predominately took place in only three census regions: the West North Central, Mountain, and Pacific Census Regions. The Navy's increase in FY79, on the other hand, occurred in all of the census regions. The Marine Corps share (approximately 5 percent of NPS female accessions) has remained relatively constant.

By State

3.86 Maps of the percentage change (FY76 to FY79) for each service's share of NPS female accessions enlisting from each state are included as Figures 3.188 through 3.191. A comparison of these maps with those states which had considerable increases/decreases in the change of total DoD NPS female accessions show that in most cases the changes which took place impacted across all branches of the services. Only in Texas, which had a considerable increase in total NPS female accessions, is a

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corresponding increase seen for the Army's percentage share. This increase occurred in conjunction with decreases evenly spread across the other services. For those states with considerable decreases in the percentage change in service share for the Army is seen for Washington, Oregon, and Wisconsin. In Oregon the Air Force had a considerable increase in shares, and in Wisconsin both the Air Force and Marine Corps had considerable increases in their shares of NPS female accessions.

TRENDS IN MONTHLY LEVEL LOADING

3.87 One management objective is to enlist new recruits in a controlled manner--e.g., in a manner such that good utilization of basic training and school facilities are achieved. In general, the long-term objective is to bring in approximately the same number of recruits each week within a month and each month within a year. The ability to achieve this objective is impacted on by:

- a. Market factors--e.g., the availability of high school graduates fluctuates throughout the year
- b. Other management objectives--e.g., making end strength even if non-level loading must be accepted
- c. Planned non-level loading--e.g., closing certain facilities during holiday periods, etc.

3.88 Notwithstanding the fact that other objectives often have had higher priority, level loading/controlled time phasing of accessions has been an objective since the inception of the

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all-volunteer force. For example, Delayed Entry Programs and seasonally-adjusted advertising strategies have been developed, in part, to help achieve level loading.

Trends

3.89 Month-to-month variations in accessions exist. The percentage of the total FY78 DoD NPS male accessions that were enlisted in each month of the fiscal year are shown in Figure 3.192. The general shape of this curve is typical of that found over the past few years.

3.90 In a year, an average of 8.33 percent of the total accessions for the year are enlisted in each month. One measure of the extent to which level loading has occurred is the deviation from this mean that occurs on a month-to-month basis. For example, for FY78, 8.08 percent of the total DoD NPS male accessions for the year were enlisted in October, 6.87 percent in November, 5.73 percent in December, and so forth. For FY78, the standard deviation of these monthly percentages from the mean (8.33 percent) was 2.45 percent.

3.91 The standard deviation (%) of the percentages of total accessions for a 12-month period that enlisted in each month during the period are shown in Figure 3.193 for three groups: total DoD NPS male accessions, total DoD NPS female accessions, and total DoD NPS black male accessions. For each group, the standard deviations are plotted for each 12-month period (October through September), starting with October 1971 through September 1972, and ending with October 1977 through September 1978.

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3.92 Service-specific standard deviations are shown in Figures 3.194, 3.195, and 3.196, for NPS male accessions, NPS female accessions, and NPS black male accessions, respectively. In figures 3.197 and 3.198, the standard deviations for DoD for each group are plotted along with the numerical values of the accessions for each group for each period covered.

3.93 From all these figures, the following general trends are seen:

- a. Through FY77, improvements in level loading occurred for all services except the Marine Corps for NPS males and NPS females
- b. Much of this improvement was lost in FY78
- c. Except for the Air Force, improvements in level loading NPS black males have not occurred.

IV. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

4.1 There are no policies which mandate that the proportion of total NPS accessions which enlist from a geographical area match the proportion of the total eligible population which resides in the same area. Similarly, although quality objectives established for specific recruiting areas/districts may tend to make it so, there is no requirement that the proportions of the total high school graduate accessions and individual mental group accessions coming from a geographical region precisely align with each other and with the proportion of total NPS accessions coming from the same region. Nevertheless, mismatches in the geographical distribution of populations versus accessions and high school graduate versus total versus mental group accessions are indicators of current or potential problems in NPS recruiting.

Populations Versus Accessions Mismatches

4.2 Without additional examination of recruiting goals, recruiting resource distribution and utilization and other factors (e.g., those impacting on propensity to enlist) by geographical region, we cannot state conclusively whether the dramatic increases in the percentages of accessions coming, for example, from the South Atlantic Census Region are the results of planned or unplanned capitalizing on strong recruiting markets or whether they are the result of losses in other areas. In any event, two dangers lurk in the current distribution of accessions:

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a. The currently strong markets may be unable to maintain their high production of recruits over the long run, since that production rate apparently exceeds what is sustainable based on population distributions. There are initial signs that this may happen in that a levelling off in the increase in the percentage of NPS accessions coming from the South Atlantic Census Region occurred in FY 1979.

b. Since reductions in percentages of accessions coming from various states/census regions has not been uniform across a large number of states/regions, potentially good markets (possibly California, Texas, New York and Michigan) may be being under-tapped at the moment. In the short run this may not be significant. In the long run the ability to enlist NPS accessions in these states in numbers reasonably representative of their populations would appear to be critical.

Mismatches Among Accession Subsets

4.3 While high school graduation status and mental group are clearly not identical measures of recruit quality, there may be reason for concern in the fact that such a high percentage of recruits are now coming from regions with relatively high proportions of high school graduates by low proportions of MG I + IIs. One of two statements would appear to be true:

a. The credibility of high school graduate numbers as a measure of recruit quality must suffer, since Mental Group I + II numbers do not track with high school graduate numbers, or

b. The credibility of Mental Group as a quality measure must suffer since Mental Group accession results do not track with high school graduate results.

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RECOMMENDATIONS

4.4 The reason for the mismatches in populations and accessions should be further investigated. The investigations should be done with the cooperation and participation of the individual services. The short term objective of the investigations should be to identify the geographical areas which may be being under-tapped as sources of NPS recruits. The long term objective should be to identify methods whereby each service can capitalize on exceptionally strong markets while simultaneously ensuring that a strong recruiting base is maintained in other large market regions.

4.5 The mid- and long-term significance of mismatches in the geographical distribution of HSGs and MG I + II recruits should be further evaluated. Specifically, the potential requirements for updating recruit screening criteria (e.g., the Navy's SCREEN) should be determined.

4.6 Programs should be developed to allow trend analyses and comparative analyses such as done for this report to be done with more automated support. Current DMDC reports are extremely comprehensive in that most of the data necessary to do the analyses are contained in the reports. The report formats, however, do not readily accommodate service comparisons, comparisons of various accession characteristics or comparison of trends.

4.7 The outputs of the programs addressed above should be made available through a data processing system with graphics capability. Tabular formats are difficult to use as a vehicle for showing trends or comparisons. Automated support for producing graphs, maps, etc., is required.